

10805972

T.S. 8/31/07

meant during the last 50% of the period of the ~~non-energised~~ non-energized state, preferably during the last 25%, more preferred during the last 10% and still more preferred during the last 5% of the period of the ~~non-energised~~ non-energized state. A motor stator winding is ~~non-energised~~ non-energized if no driving current is applied to that motor stator winding by a driving mechanism. Therefore, a ~~non-energised~~ non-energized motor stator winding is substantially current free (or substantially current-less or in a substantially current-zero state): some current may however be flowing in that ~~non-energised~~ non-energized winding, which is then current generated by the bmf or by a decay of the winding.

In the present invention the voltage or back electromagnetic force over a ~~non-energised~~ non-energized motor stator winding is observed, preferably as late as possible in the ~~non-energised~~ non-energized phase, where this voltage is a measure of a rotation speed, after the disappearance of an ~~energising~~ energizing pulse or signal on another motor stator winding.

The means for sensing the back electromagnetic force may comprise timing means for controlling the sensing of the back electromagnetic force on the first respectively second motor stator winding so as to occur during ~~energising~~ energizing of the second respectively first motor stator winding.

The sensing may have a fixed or adjustable relative position in a ~~non-energised~~ non-energized state time window. The back electromagnetic force may be sensed based on the timing means. A memory device may be provided for storing the sensed back electromagnetic force. Multiple samples of the back electromagnetic force may also be made based on the timing means, the multiple samples being stored as a combined value, e.g. a mean value, in the memory device or as separate values in a plurality of memory devices. The plurality of samples may thus be stored as such on a memory device, or as processed values.

T.S.
8/30/07Page 4, line 20 - page 5, line ⁷/₂:

An apparatus according to the present invention may comprise means for connecting one terminal of a ~~non-energised~~ non-energized motor stator winding to a fixed or reference potential and means for at the same time measuring the voltage at an other terminal of that ~~non-energised~~ non-energized motor stator winding, thus measuring a unipolar signal across one ~~non-energised~~ non-energized motor stator winding for sensing the voltage.

The present invention also provides a method for detecting rotation of a rotor of a multiple phase motor with bipolar drive, excluding a three-phase motor with bipolar drive with